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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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FEWER DEATHS FROM HEART DISEASE AMONG CHILDREN AND YOUNG ADULTS

Organic heart disease for many years has held first rank among the causes of death. Its death toll has been increasing, not by large year-to-year advances, but, nevertheless, slowly and persistently. More than 225,000 persons now die yearly of cardiac conditions in this country.

As a composite, this picture is not a bright one, more particularly in view of the fact that heart disease has come to be recognized as a fertile field for active preventive work. It is discouraging to observe the deathrate rising, *despite* the work done by organizations which have been formed to aid in the prevention and treatment of cardiac conditions. It would be rash, however, to conclude that such public health effort as has been expended has borne no fruit; that the increase in school medical inspections, the growing interest of industrial hygienists, and all of the widespread preventive and therapeutic efforts that have been made against cardiac diseases, have been ineffective. These well considered efforts are still young and time must elapse before their influence can be felt in terms of markedly reduced deathrates.

There is, furthermore, a brighter side to this picture of heart disease. The increase to which we have referred above has been in the *crude* deathrate. With heart disease (as with certain other conditions), the crude deathrate is not the best measure—either of progress or of retrogression. When the heart disease mortality data for the various age-ranges are considered, it is found that the rise in the deathrate applies only to the higher age groups, and that distinct improvement has taken place, in recent years, in childhood, adolescence and early adult life—in fact, up to age forty-five, among males, and up to sixty-five, among females.

This improvement is not to be belittled, *despite* the fact that it

has taken place in an age range where less than one-eighth of the deaths occur. It is with early life that the preventive aspect of the heart disease problem is chiefly concerned; for while cardiac diseases usually *kill* after age forty-five, they are often acquired in childhood. We are entirely too prone to allow our attention to become focused on the older ages, because it is then that the sickness and deathrates are highest; and we are apt to overlook the fact that heart disease takes high rank as a cause of death in the early ages even by comparison with certain other diseases which are looked upon as the most important causes of mortality among children. In the United States Registration Area, in 1926, heart disease was responsible for more deaths of children than was scarlet fever, for almost one-half as many diphtheria, and for two-fifths as many as measles.

A survey of New York City school children some years ago showed that at least one per cent. of those in elementary grades had serious cardiac affections; in other cities, school medical inspections disclosed a ratio of approximately two per cent. of cardiac children to total children examined. In large numbers of these cases, histories of tonsilitis, rheumatism, diphtheria and dental disease were disclosed, and there were also many records of measles, whooping cough and scarlet fever. In many cases, it was shown that the cardiac disease closely followed these infections. To our mind, the decline in the cardiac disease deathrate among children will be found, on analysis, to be very largely a reflex of the great strides that have been made in the control of diphtheria and scarlet fever, of the increasingly intelligent care that is being given to children who have had infectious diseases, of the earlier diagnosis of rheumatism, of the increase in tonsillectomies and of improved dental hygiene.

There is, therefore, nothing very discouraging in the fact that heart disease mortality is increasing after age sixty-five. This is the age-range when approximately 60 per cent. of the deaths from chronic cardiac conditions occur. Many of the deaths among the aged are those of persons who had "senile hearts." It is expected that hearts will give out in old age. This is inevitable, and more of a natural process than a morbid one. Cardio-vascular-renal degenerations are characteristic of old age, and tens of thousands of old people die of them every year. A great many of these deaths are, in reality, the result of senile debility, in which the heart impairment is merely an accompaniment of the breaking down of other organs. When death occurs, the physician states on the death certificate that there was cardiac degeneration, and these deaths are classified under that

Deathrates per 100,000 from Heart Disease (International List Title No. 90). Males and Females—by Age. Metropolitan Life Insurance Company. Industrial Weekly Premium-paying Business. 1911 to 1928.

Age Period	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928*
MALES																		
1 to 4	8.5	7.7	9.3	6.6	8.0	5.6	7.3	8.5	7.7	6.7	10.1	6.1	7.1	5.5	5.1	7.1	4.6	4.4
5 to 9	16.0	14.5	14.0	14.1	13.8	15.5	14.6	14.3	12.0	11.5	13.1	11.2	10.8	12.3	10.4	10.1	9.5	10.2
10 to 14	24.8	18.8	22.7	24.4	22.4	21.5	22.7	23.9	16.6	20.3	24.9	20.7	20.6	19.6	17.9	16.2	16.7	14.4
15 to 19	29.7	26.9	25.6	30.2	29.5	30.7	31.4	33.6	22.5	28.6	23.9	29.0	27.7	25.2	26.8	22.6	27.9	22.0
20 to 24	33.4	27.8	27.3	29.4	27.5	28.9	28.6	31.4	25.3	24.5	26.6	25.1	24.4	24.4	20.7	24.5	21.8	24.4
25 to 34	58.1	60.3	59.3	60.7	56.4	55.1	53.7	59.3	44.1	37.8	35.7	37.8	44.5	45.3	38.3	42.1	43.1	40.3
35 to 44	137.1	150.2	144.1	129.2	124.7	135.8	137.8	134.3	107.4	90.7	91.1	92.0	105.6	111.1	112.3	113.3	111.8	116.1
45 to 54	288.6	287.1	296.2	296.4	258.2	290.3	319.0	298.0	212.3	215.6	214.0	273.3	286.1	302.4	312.1	325.4	323.4	354.7
55 to 64	665.0	717.0	674.1	656.9	640.6	696.9	765.8	712.0	563.7	536.6	540.8	628.6	703.6	703.9	785.9	806.3	784.5	851.7
65 to 74	1649.5	1677.7	1675.1	1656.8	1555.1	1596.5	1885.8	1754.0	1401.8	1413.5	1407.2	1586.7	1705.2	1626.0	1703.6	1891.4	1806.5	1986.2
75 and over	2917.4	2974.0	2832.7	2914.0	3030.3	3225.8	3269.9	3269.8	3053.2	3370.9	3615.4	3051.1	3809.4	3447.0	3305.8	4218.7	4105.8	4347.8
FEMALES																		
1 to 4	11.2	4.8	7.3	4.7	6.2	8.2	6.2	6.9	6.2	6.3	9.8	6.3	6.5	6.0	7.6	6.4	5.2	6.1
5 to 9	21.0	17.3	19.7	17.6	16.6	16.0	17.0	17.0	12.4	15.5	15.7	13.0	10.8	14.1	13.5	11.8	12.9	12.2
10 to 14	33.1	30.4	29.2	34.4	31.3	28.4	28.4	33.8	24.4	21.7	25.5	29.6	22.6	24.6	22.9	20.5	20.5	20.1
15 to 19	27.0	33.9	27.2	36.5	32.0	32.3	31.3	36.4	25.4	26.2	27.1	26.2	23.4	27.2	22.8	22.0	23.2	20.8
20 to 24	38.9	37.6	31.6	31.9	29.4	25.4	31.9	42.4	27.9	26.3	27.3	23.2	26.8	23.8	24.5	25.2	25.9	26.8
25 to 34	53.0	52.4	54.6	46.1	47.3	48.8	50.3	65.4	45.0	41.8	38.1	37.3	36.2	36.8	39.1	38.7	38.1	37.7
35 to 44	121.2	119.1	112.6	109.6	107.4	105.9	107.0	124.3	90.7	90.1	87.9	82.7	88.8	89.5	93.1	94.5	86.2	89.3
45 to 54	236.0	234.5	234.4	236.0	221.2	236.2	241.8	233.0	199.4	197.0	192.5	213.6	224.3	219.2	231.4	227.7	233.1	252.4
55 to 64	595.2	589.0	580.1	519.6	558.5	525.2	585.6	573.4	478.4	517.7	492.0	518.1	584.0	544.3	566.2	608.6	584.3	624.5
65 to 74	1422.8	1446.9	1405.3	1442.9	1428.9	1552.5	1558.6	1536.4	1366.5	1423.4	1385.3	1539.4	1555.9	1449.3	1459.7	1590.1	1499.5	1711.4
75 and over	2480.7	2532.5	2581.5	2700.6	2913.0	2795.1	3145.6	3105.7	2872.1	3320.1	3142.7	3153.7	3451.0	3238.3	3594.5	3985.0	3794.7	3940.1

*Rates for 1928 are provisional.

heading for purposes of mortality statistics. Many of such deaths could have been charged, with almost equal propriety, to other diseases of the vascular system, or to nervous or renal conditions, or to "senility." As a matter of fact, therefore, much of the supposed increase in deaths from heart disease at the older ages is fictitious, representing, to a degree, the changes in the style of reporting the causes of death in the last 25 or 30 years.

The table on page 3 shows the trend of the heart disease deathrate among Metropolitan Industrial policyholders, by sex and age, during the period 1911 to 1928.

SMALLPOX IN THE UNITED STATES AND CANADA, 1928

There were 317 more cases of smallpox in forty-four states, the District of Columbia and six Canadian provinces in 1928 than in 1927. Canada accounted for most of this small increase. There were 2,922 more cases in comparable areas of the two countries in 1928 than in 1926, in which year the case-fatality rate was more than three times as high as that for 1928. The 1928 case-fatality rates, in both countries, were the lowest we have observed in our studies of the sickness and mortality incidence of this disease during the period 1916 to 1928.

That there were fewer deaths from this disease last year is most gratifying; that there were nearly 35,000 persons who were infected with smallpox only brings into clearer relief two facts: first, that there are still millions of persons in the two countries who have not yet come to realize that the menace of smallpox is country-wide, and that their failure to be vaccinated may at any time become the indirect cause for the death or disfigurement of thousands of people, together with serious effects on the social and business activities of their communities; and second, that health officers are still unable to overcome organized opposition to their efforts to stamp out this disease through the only known preventive—vaccination.

There is always the danger that improvement in the smallpox deathrate will engender a false optimism concerning this loathsome disease. Last year the virulent type was not prevalent. This year, or next year, there is real danger that smallpox may be both malignant and widespread on account of our only partially vaccinated population. One need only to revert to the high case-fatality rates that have prevailed in certain American states, Canadian provinces, and in cities in each country within the two latest decades, to see what the possibilities are at any time. As late as 1926, for example, there were 2,794 cases of smallpox in California with 232 deaths, correspond-

ing to a case-fatality rate of 8.3 per cent. If this rate had prevailed, in 1928, in the United States and Canada, the smallpox death toll would have been 2,884 instead of 120. In Washington, D. C., in 1925, the case-fatality rate was 33.9 per cent., and in that same year a rate of 39.8 was reported for Camden, N. J.; 34.6 for Minneapolis; 27.2 for Milwaukee, and 12.5 for Philadelphia. There were even higher case-fatality rates than the above in cities where both numbers of cases and of deaths were smaller; but in those noted above, the deaths ran from 20 to 144, showing that a considerable number of persons were affected and that many died.

Whether the incidence of smallpox increases or decreases from one year to another is a relatively unimportant detail, as compared with the fact that when tens of thousands of persons are infected, we are always in danger of the spreading of smallpox, of the most virulent type, to unprotected communities.

The appended tables show the number of cases, deaths and the case-fatality rates in a group of American states and Canadian provinces, in selected individual states and provinces, in 680 cities considered as a group, and in certain selected cities.

Smallpox Cases, Deaths and Case-Fatality Rates. Years 1926-1928. For Forty-four States, District of Columbia and Six Canadian Provinces.

Area	1928			1927			1926		
	Cases	Deaths	Deaths per 100 Cases	Cases	Deaths	Deaths per 100 Cases	Cases	Deaths	Deaths per 100 Cases
United States and Canada	34,751	120	0.35	34,434	147	0.43	31,829	346	1.09
United States (44 States and Dist. of Columbia)	33,305	118	0.35	33,239	142	0.43	30,993	343	1.11
6 Canadian Provinces	1,446	2	0.14	1,195	5	0.42	836	3	0.36

Selected States and Canadian Provinces Showing a High Case-Fatality Rate or Above-Average Prevalence of Smallpox During the Year 1928

Area	Cases	Deaths	Deaths per 100 Cases
UNITED STATES:			
Arizona	417	6	1.44
California	1,176	2	.17
Georgia	236	4	1.69
Illinois	1,652	5	.30
Indiana	3,725	13	.35
Iowa	1,921	4	.21
Kansas	2,550	5	.20
Michigan	1,335	2	.15
Missouri	328	6	1.83
Nebraska	1,472	0	0
North Carolina	2,419	16	.66
Ohio	1,236	4	.32
Oklahoma	3,445	13	.38
Oregon	1,974	5	.25
CANADA:			
British Columbia	598	0	0
Saskatchewan	475	2	.42

Smallpox Cases, Deaths and Case-Fatality Rates for the Years 1926-1928. For 604 United States Cities and 76 Canadian Cities.

Area	1928			1927			1926		
	Cases	Deaths	Deaths per 100 Cases	Cases	Deaths	Deaths per 100 Cases	Cases	Deaths	Deaths per 100 Cases
United States and Canadian Cities (680)	10,214	13	0.13	10,769	20	0.19	9,553	235	2.46
United States Cities (604)	9,036	13	0.14	9,466	18	0.19	9,190	232	2.52
Canadian Cities (76)	1,178	0	0	1,303	2	0.15	363	3	0.83

Smallpox Cases and Deaths in Certain Cities, 1928.

City	Cases	Deaths	Deaths per 100 Cases
CANADA			
Vancouver, B. C.	232	0	0
Ottawa, Ont.	171	0	0
Quebec, Que.	247	0	0
UNITED STATES			
Oakland, Calif.	322	0	0
Sacramento, Calif.	35	1	2.86
Chicago, Ill.	147	0	0
Anderson, Ind.	147	0	0
Muncie, Ind.	281	2	0.71
Terre Haute, Ind.	121	1	0.83
Des Moines, Iowa	362	0	0
Flint, Mich.	152	0	0
Hannibal, Mo.	163	1	0.61
Kansas City, Mo.	74	1	1.35
St. Joseph, Mo.	210	0	0
Findlay, Ohio	80	1	1.25
Oklahoma City, Okla.	378	0	0
Portland, Ore.	1,051	3	0.29
Fort Worth, Tex.	154	1	0.65
Houston, Tex.	41	1	2.44
Spokane, Wash.	332	0	0

ARE PHYSICIANS LONG-LIVED?

Physicians, on an average, do not live as long as the general run of Ordinary policyholders of the Metropolitan Life Insurance Company. They do live a little longer, however, than the general male population of the country as a whole. These are the broad conclusions drawn from a life table which has just been computed by the Statistical Bureau of the Metropolitan Life Insurance Company, on the basis of the mortality observed among American physicians (white male) in the year 1925*. This life table shows that at the age of thirty years —we may say at the beginning of his career—a physician has an expectation of life of thirty-eight years, just two years less than the holder of an Ordinary policy in the Metropolitan Life Insurance Company at the same age, and barely one year more than the man in the general population.

Clearly, the personal advantage to himself, which the doctor must derive from knowing when the human body is out of sorts and what to do about it, is more than counterbalanced by the exacting duties, the irregular hours, the liability to emergency calls at any and all times and in all weathers, which fall to his lot, especially in country

*Prepared from data collected by Dr. HAVEN EMERSON and HARRIET E. HUGHES, *American Journal of Public Health*, 1926, page 1088.

and small town practice. Yet doctors are a highly selected lot; they cannot even begin practice until they have stood the grind of a medical curriculum, followed, in most cases, by a period of apprenticeship in hospitals. There is a certain social selection also; all of which must tend to make medical men a group with better than average physique. In spite of these initial advantages, as he runs his life course, the physician is constantly working against odds, and in the end he is left with only a meager margin of advantage over the general population of the country. These facts, with some additional details, are brought out in the appended table:

Expectation of Life, in Years—American Physicians (White Male) 1925 Compared with Population of United States Registration States (White Male) 1925.

Age	Expectation of Life in Years		
	Physicians	General Population	Advantage in Favor of Physicians
30	38.01	37.10	.91
40	29.49	28.82	.67
50	21.67	21.11	.56
60	14.63	14.26	.37
70	8.90	8.82	.08

HEALTH RECORD FOR MAY, 1929

Health conditions during May among the industrial populations of the United States and Canada were excellent, as evidenced by the very low deathrate of 9.0 per 1,000 among approximately nineteen million Industrial policyholders of the Metropolitan Life Insurance Company. Only twice during the current decade has this group enjoyed a lower May deathrate: in 1921, when the minimal figure of 8.6 was recorded, and in 1927 when the rate was 8.9. As compared with the mortality rate for the same month of 1928 (10.4 per 1,000), the decline this year amounted to 13.3 per cent. The cumulative deathrate for the five months' period, January-May, was 10.7 per 1,000, or seven per cent. higher than for the corresponding part of 1928. At the end of February, when the death toll of the latest influenza outbreak had just begun to subside, the year-to-date deathrate was 31.9 per cent. above that for last year.

West of the Rocky Mountains the May deathrate was 6.8 per 1,000, or the same as recorded last year, while the cumulative figure

for the January to May period was 4.9 per cent. higher than in 1928. In the remainder of the United States, the deathrate in May was only 9.2 per 1,000, as compared with 10.7 last year, and the cumulative figure up to May 31st was 11.0, as compared with 10.2, an excess, in 1929, of 7.1 per cent. Among Canadian Metropolitan policyholders, the 1929 May mortality rate of 8.9 per 1,000 may be compared with 10.1 last year. The cumulative January-May deathrate was 10.2, which exceeds last year's figure (9.1) by 11.9 per cent.

All of the principal epidemic diseases of childhood except scarlet fever, registered lower deathrates than for May, 1928. The influenza mortality rate dropped 47.4 per cent.; that for tuberculosis, 12.8 per cent.; for cerebral hemorrhage, 10.3 per cent.; that for heart disease, 9.0 per cent.; for pneumonia, 38.7 per cent.; for respiratory conditions other than pneumonia, 44.2 per cent.; for Bright's disease, 7.3 per cent.; for puerperal conditions, 13.8 per cent., and for homicides, 26.3 per cent. There was a small increase for cancer and a considerable rise for automobile fatalities.

The most significant single health development of the month was the low mortality rate for tuberculosis, which brought down the year-to-date figure for this disease to a point well below last year's death-rate for the like period. Up to the end of April, tuberculosis mortality had been showing an increase, reflecting the effect of the influenza outbreak, which undoubtedly hastened the deaths of large numbers of persons suffering from tuberculosis. The prospect for a new low point in the deathrate from tuberculous disease, in 1929, is now excellent.

The general deathrate for the large cities of the United States in May was 12.9, as compared with 13.3 for April and 14.8 for May, 1928. There were more cases in May than in April of diphtheria, measles, poliomyelitis, smallpox and typhoid fever, but fewer reports of influenza and scarlet fever. Comparison with May of last year shows more sickness from diphtheria, scarlet fever and typhoid fever, with fewer cases of influenza, measles, poliomyelitis and smallpox.

Reports from thirty-one states show that the increase in diphtheria cases in May was only slight. In New Jersey, nevertheless, there were 537 cases reported during May, as compared with 419 in April. The corresponding figures for Illinois are 783 and 617 and for Michigan 483 and 304. Measles cases, in May, increased to 59,102, as compared with 56,280 in April. The largest increases were in Massachusetts, Wisconsin, Kansas and Montana. Reports of poliomyelitis from forty-three states showed 92 cases, as against 70 in April. In Massachusetts the increase was from one to eight cases, and in California,

from three to ten. In Florida, there was a decrease from thirteen to six cases. Early in May, an outbreak of scarlet fever was reported in a section of Baltimore, traceable, it is said, to failure on the part of residents to observe quarantine regulations.

Influenza cases, in 18 states, dropped from 3,870, in April, to 2,472 in May. In the latter month, in 1928, case reports numbered 12,929. The most noteworthy decreases between April and May were in Ohio, South Carolina, Texas and California.

The increase in smallpox prevalence in May was slight, although there were considerable rises in Ohio, Indiana and Nebraska. In Hempstead, Long Island, two smallpox cases were discovered, both of which affected children. This resulted in action by the State Health Department, and all of the Hempstead schools were placed under quarantine. Press reports are to the effect that most residents of the town, young and old, were vaccinated. The prevalence of typhoid fever rose sharply for this time of the year, more especially in Pennsylvania, Missouri and South Carolina.

Typhoid fever, in 42 states, was far more prevalent in May than in April, with case reports numbering 1,046 as compared with 790. The increase in Pennsylvania was from 63 cases to 90; in Missouri (exclusive of Kansas City), from 27 to 92; and in South Carolina, from 30 to 75.

Epidemic cerebro-spinal meningitis cases are still being reported in considerable numbers from California. The situation in other states appears to have improved.

The following table shows the mortality among the Industrial policyholders for May, 1929; April, 1929 and May, 1928, together with the cumulative deathrates for the first five months of each year.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF MAY, 1929; APRIL, 1929, AND OF MAY, 1928

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*				
	May, 1929	Apr., 1929	May, 1928	Cumulative January to May	
				1929	1928
TOTAL—ALL CAUSES	900.1	994.4	1038.1	1069.5	997.1
Typhoid fever	1.5	1.5	2.0	1.5	1.7
Measles	5.0	5.4	12.1	4.3	7.8
Scarlet fever	3.5	4.1	3.1	3.6	3.8
Whooping cough	5.0	5.7	6.9	6.5	5.7
Diphtheria	8.1	9.2	9.1	9.8	11.5
Influenza	20.3	33.1	38.6	83.4	33.3
Tuberculosis (All forms)	91.6	95.5	105.0	93.8	96.0
Tuberculosis of resp'y system	81.0	85.9	92.5	83.6	84.5
Cancer	76.9	76.0	76.6	76.4	76.0
Diabetes mellitus	18.5	19.4	19.8	21.8	19.4
Cerebral hemorrhage	55.8	60.5	62.2	62.3	60.9
Organic diseases of heart	145.0	161.7	159.3	168.9	155.5
Pneumonia (All forms)	81.2	111.2	132.5	136.7	128.5
Other respiratory diseases	11.6	13.3	20.8	15.1	17.1
Diarrhea and enteritis	13.9	12.1	15.4	13.4	14.9
Bright's disease (Chronic nephritis)	70.3	74.5	75.8	76.5	78.1
Puerperal state	12.5	14.0	14.5	14.3	14.4
Suicides	8.9	9.7	9.1	8.7	8.2
Homicides	5.6	6.5	7.6	6.2	6.4
Other external causes (excluding suicides and homicides)	56.8	57.9	56.9	56.8	55.8
Traumatism by automobiles	16.9	17.2	15.8	15.9	14.8
All other causes	208.0	222.9	210.8	209.3	202.1

*All figures include infants insured under one year of age.

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STATISTICAL BULLETIN,

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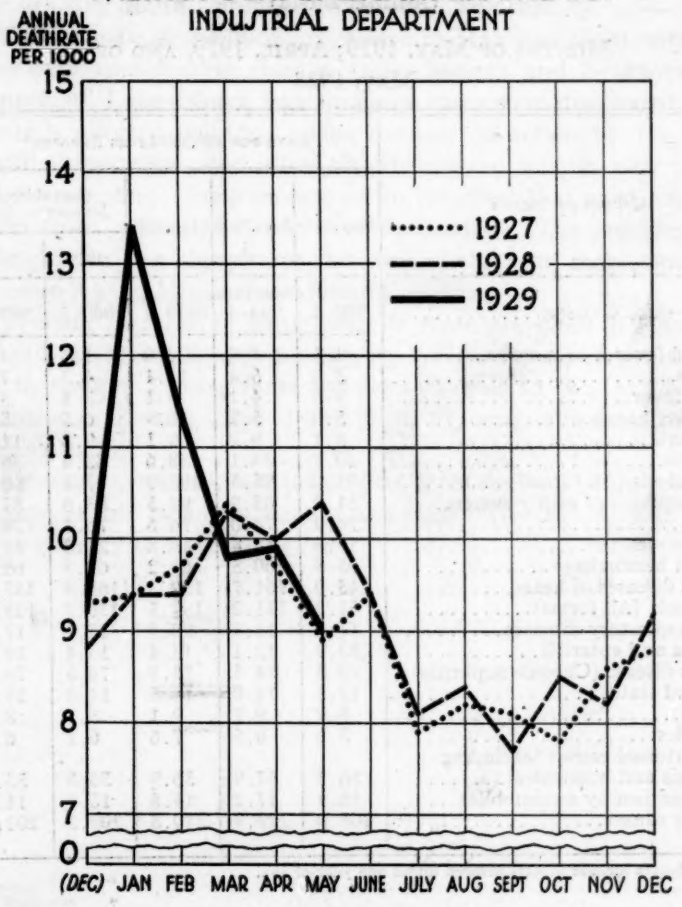
DEATHRATES
FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT



1927	9.4	9.7	10.4	9.7	8.9	9.4	7.9	8.2	8.1	7.8	8.6	8.8
1928	9.4	9.4	10.3	10.0	10.4	9.4	8.1	8.4	7.7	8.5	8.2	9.2
1929	13.4	11.4	9.8	9.9	9.0							

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